



THE HENRYK NIEWODNICZAŃSKI
INSTITUTE OF NUCLEAR PHYSICS
POLISH ACADEMY OF SCIENCES



IFJ PAN - basic information

Bogdan Fornal / Antoni Szczurek

September 22, 2025



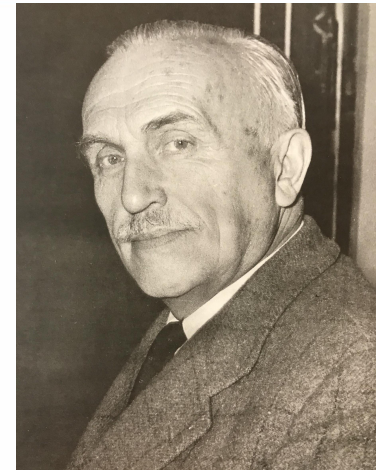
1955 – founding of IFJ as the institute where the first cyclotron in Poland was located.

1960 – IFJ becomes an autonomous institution



**Prof. Marian Mięśowicz
(1907-1992)**

1970 – Particle physics joins



**Prof. Henryk Niewodniczański
(1900-1968)**

1988 – The IFJ is named after its founder – Prof. Henryk Niewodniczański

2003 – IFJ gets the status of a research institute of the Polish Academy of Sciences



70 LAT

INSTYTUTU FIZYKI JĄDROWEJ
IM. HENRYKA NIEWODNICZAŃSKIEGO PAN
1955 – 2025



Personnel: 561:

- Prof. 34,
- Assoc. Prof. 59,
- Ph.D. 94,
- engineers 117



Status:

highest category among research
institutions in Poland **A+**



EU distinction of “HR Excellence in Research”



HR EXCELLENCE IN RESEARCH

World University Rankings 2023

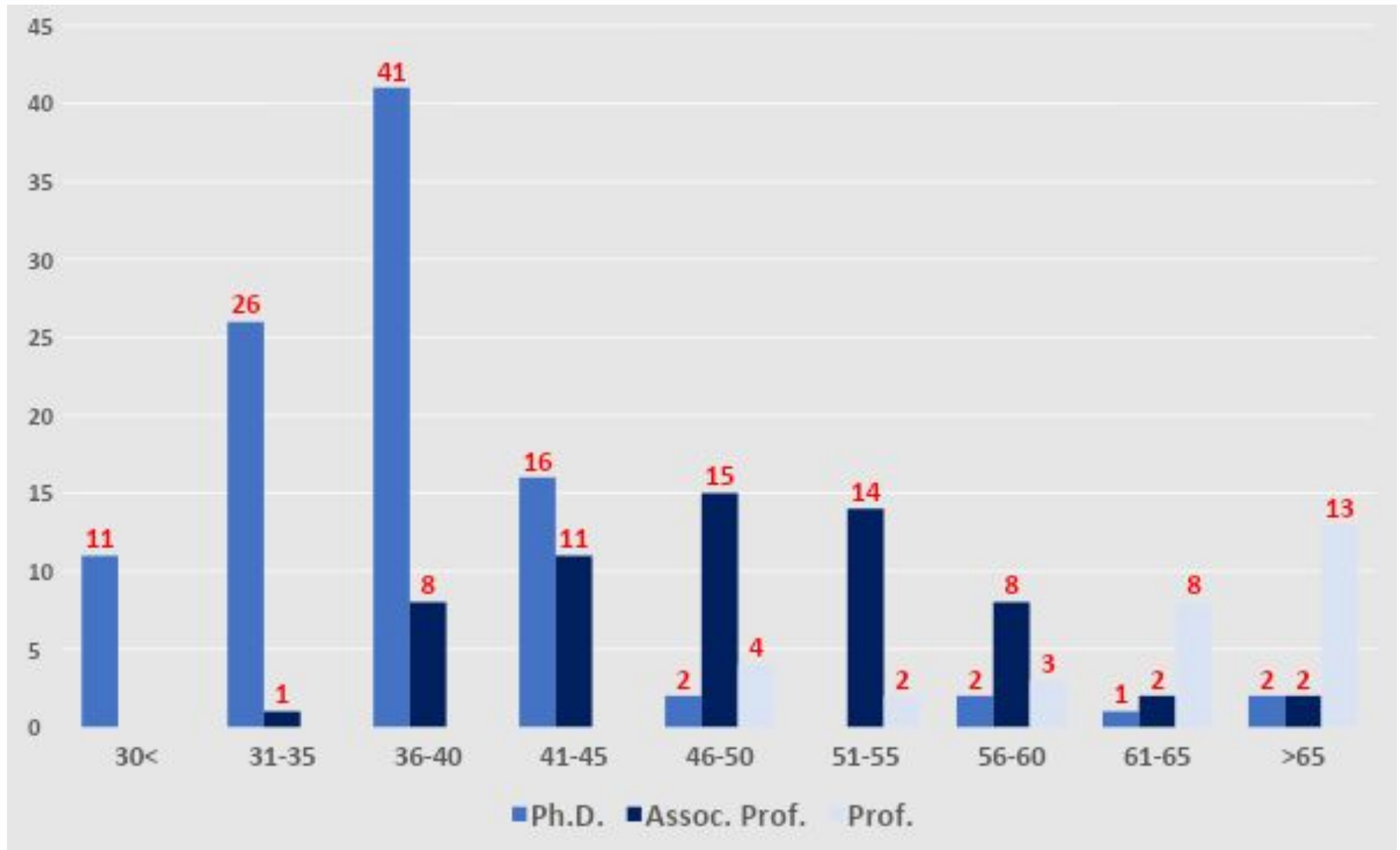
Discover the world's top 2000 universities



**Rank 775
(Top 3.7%)**

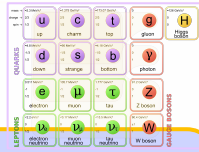


Age Profile of Researchers

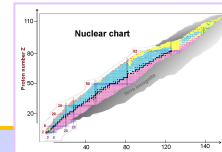




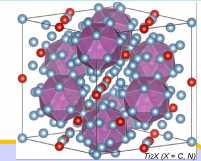
Organizational structure of IFJ PAN



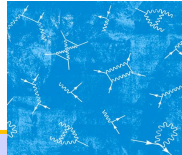
**Division of Particle and
Astroparticle Physics**



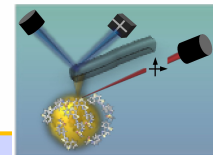
**Division of Nuclear Physics
and Strong Interactions**



**Division of Condensed
Matter Physics**



**Division of Theoretical
Physics**



**Division of
Interdisciplinary Research**



**Division of Applications of
Physics**



**Division of Scientific
Equipment and Infrastructure
Construction**



**Cyclotron Center
Bronowice**



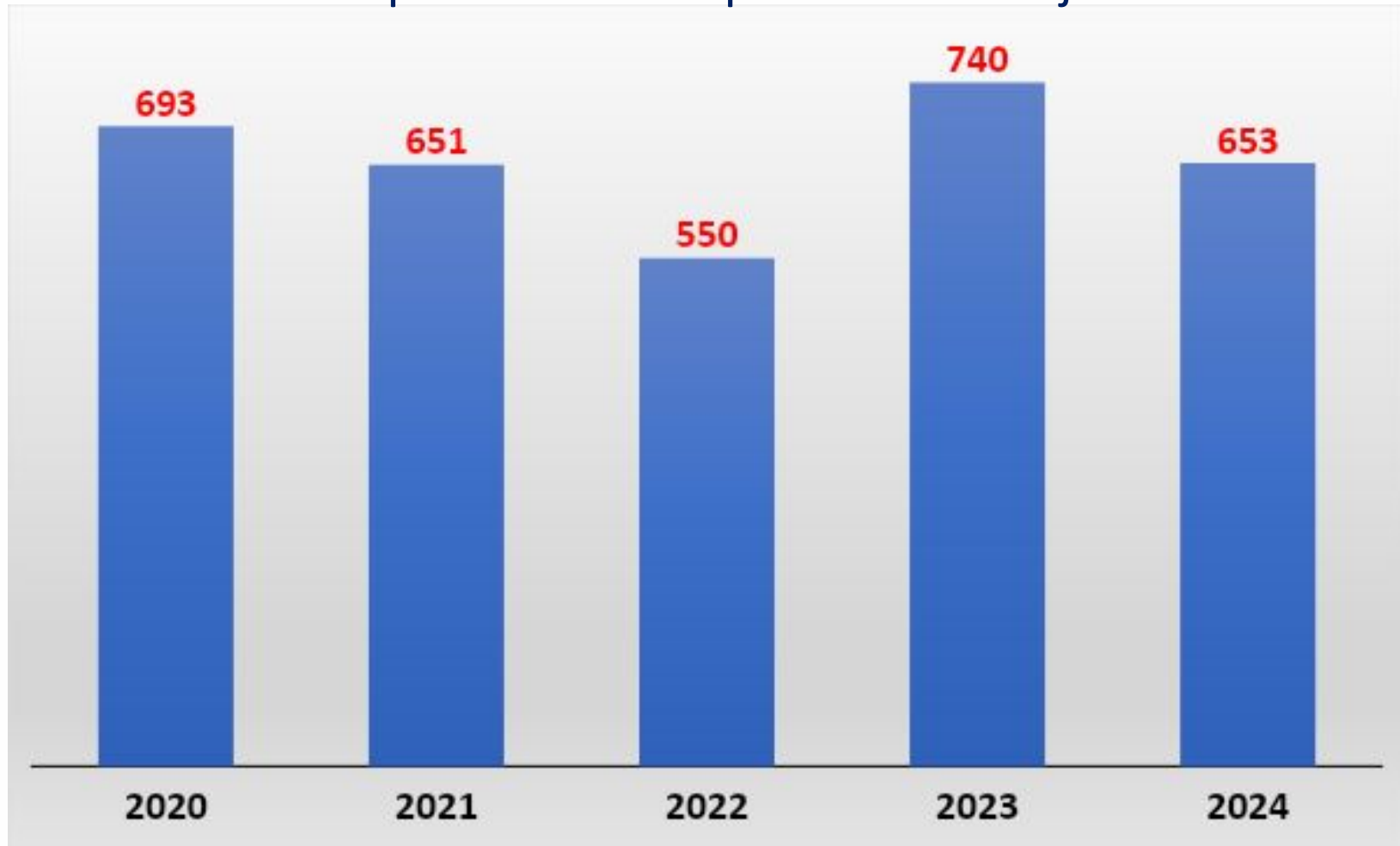
4 Accredited Laboratories

**Krakow School of
Interdisciplinary PhD Studies**





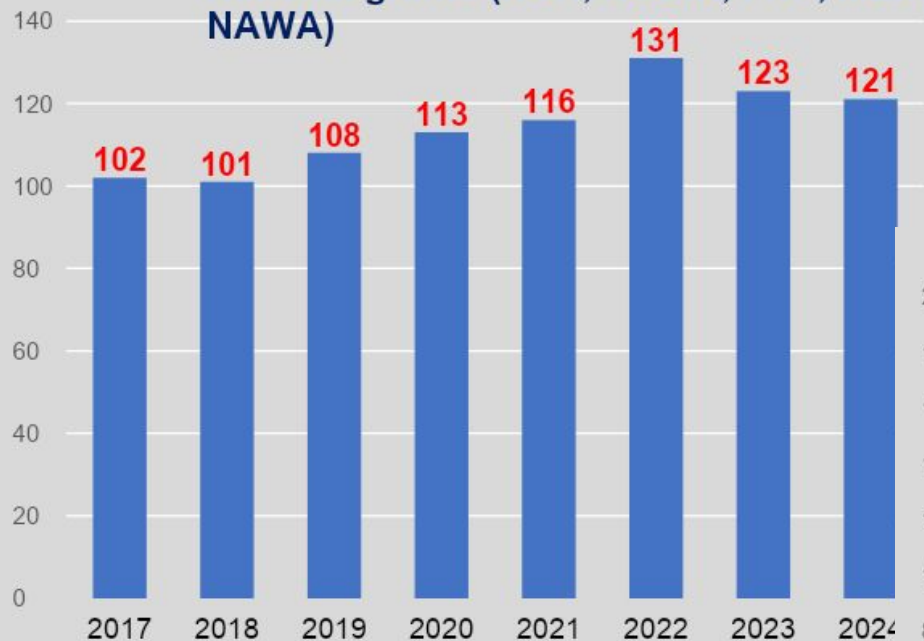
Scientific publications in peer-reviewed journals



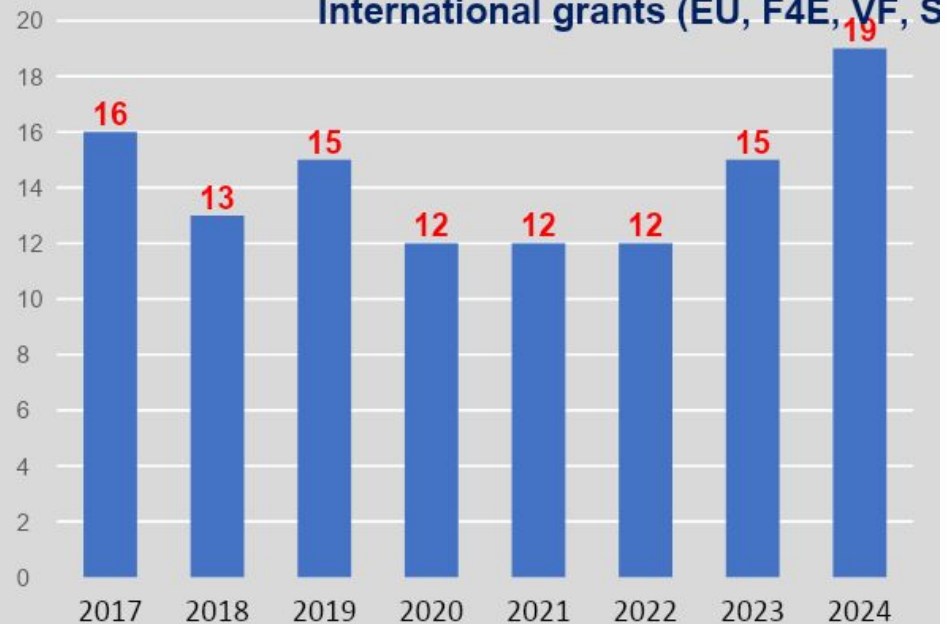


Polish and International Grants

National grants (NCN, NCBiR, FNP, MEiN, NAWA)



International grants (EU, F4E, VF, S)





Organization of international events

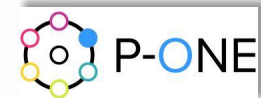




Staff: ~80 people

Main research topics:

- The ATLAS experiment
- The LHCb experiment
- The Belle II experiment
- Cosmic Ray Research (PierreAuger, CREDO)
- Neutrino studies (T2K, P-ONE)
- High energy Gamma-Ray Astrophysics (HESS, HAWC, CTA)
- Involvement in other projects
 - MUonE experiment at CERN
 - ATHENA experiment at future EIC
 - Physics feasibility studies for FCC
 - development of “Cloud Computing” and GRID computing infrastructures

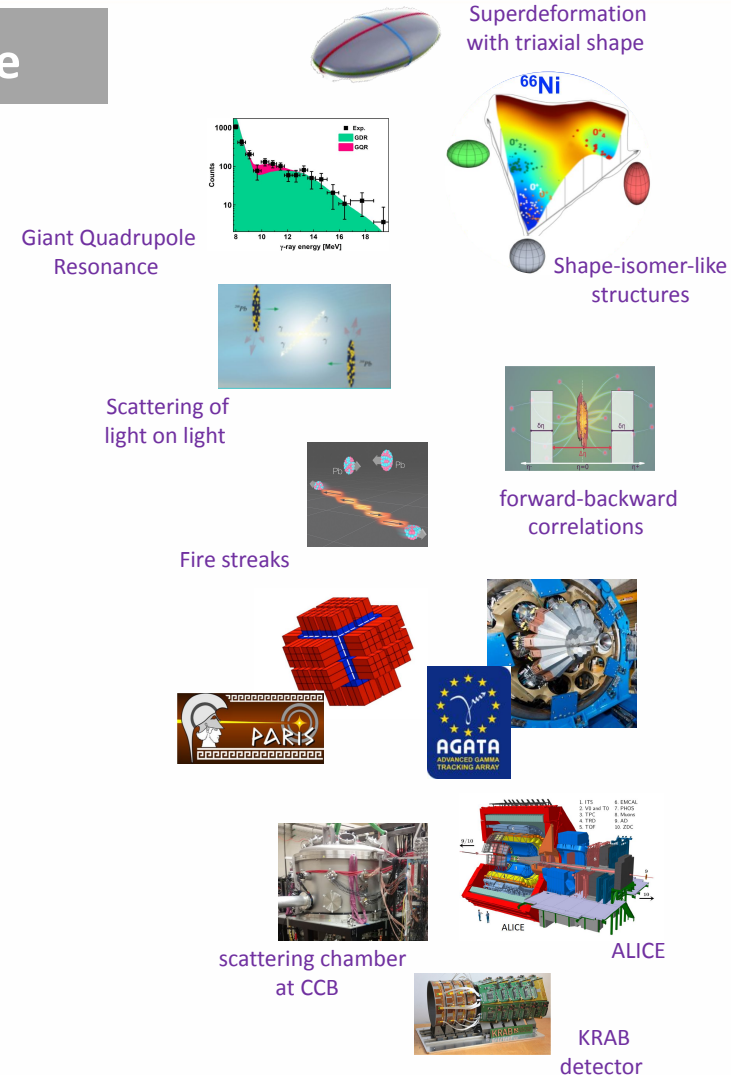




Staff: ~45 people

Main research areas:

- **Nuclear structure** studies in function of temperature, spin and isospin (AGATA, PARIS, EXOGAM, GALILEO ...)
- **Nuclear reactions mechanisms** and hadron collisions (BINA, KRATTA, KATANA...)
- **Interactions of relativistic ions** at LHC and SPS energies (ALICE, NA61/SHINE)
- **Theoretical studies** of the structure and dynamics of many-body systems - nuclear and hadron physics
- **Research and development** of new detection techniques for nuclear physics (PARIS, AGATA, KATANA, KRAB....)

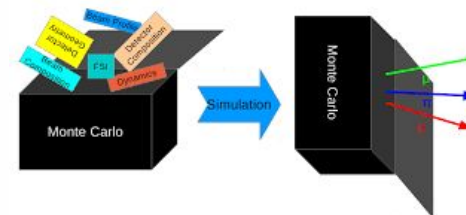
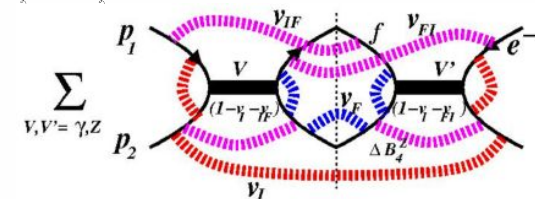
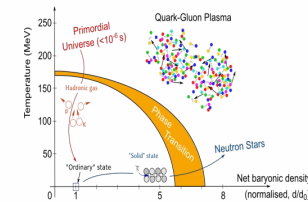
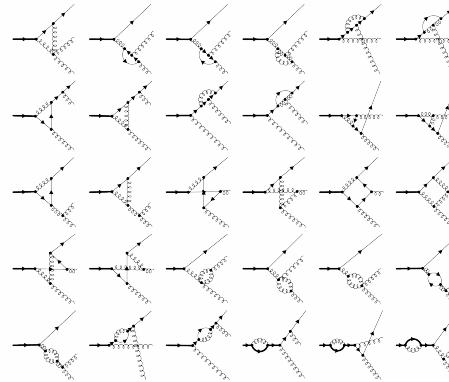




Staff: ~34 people

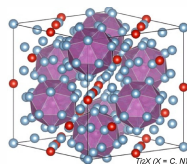
Main research topics:

- Theory of structure of matter
- Particle Theory
- Theory of complex systems
- Mathematical physics



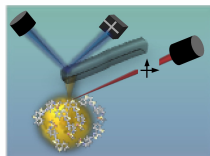


Division of Condensed Matter Physics



Staff: ~60 people

Division of Interdisciplinary Research



Staff: ~40 people

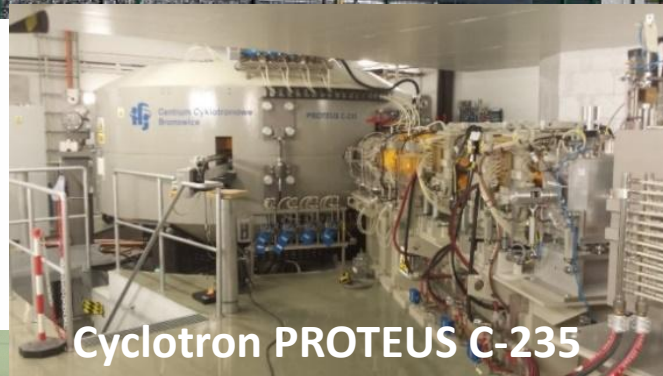
Division of Applications of Physics



Staff: ~45 people

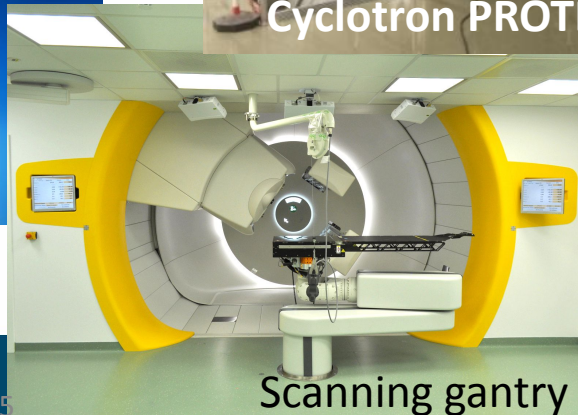


Proton cancer therapy



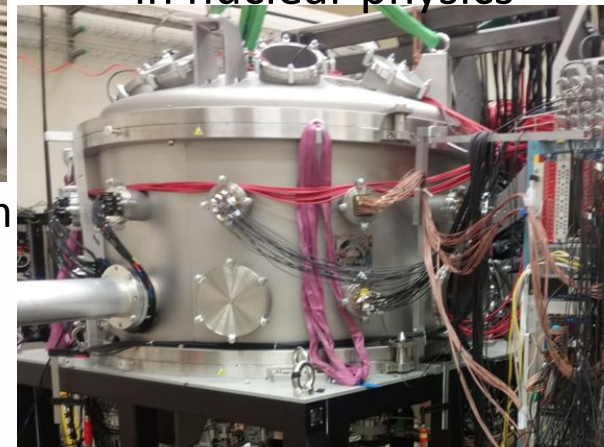
Cyclotron PROTEUS C-235

proton beam
70-230 MeV



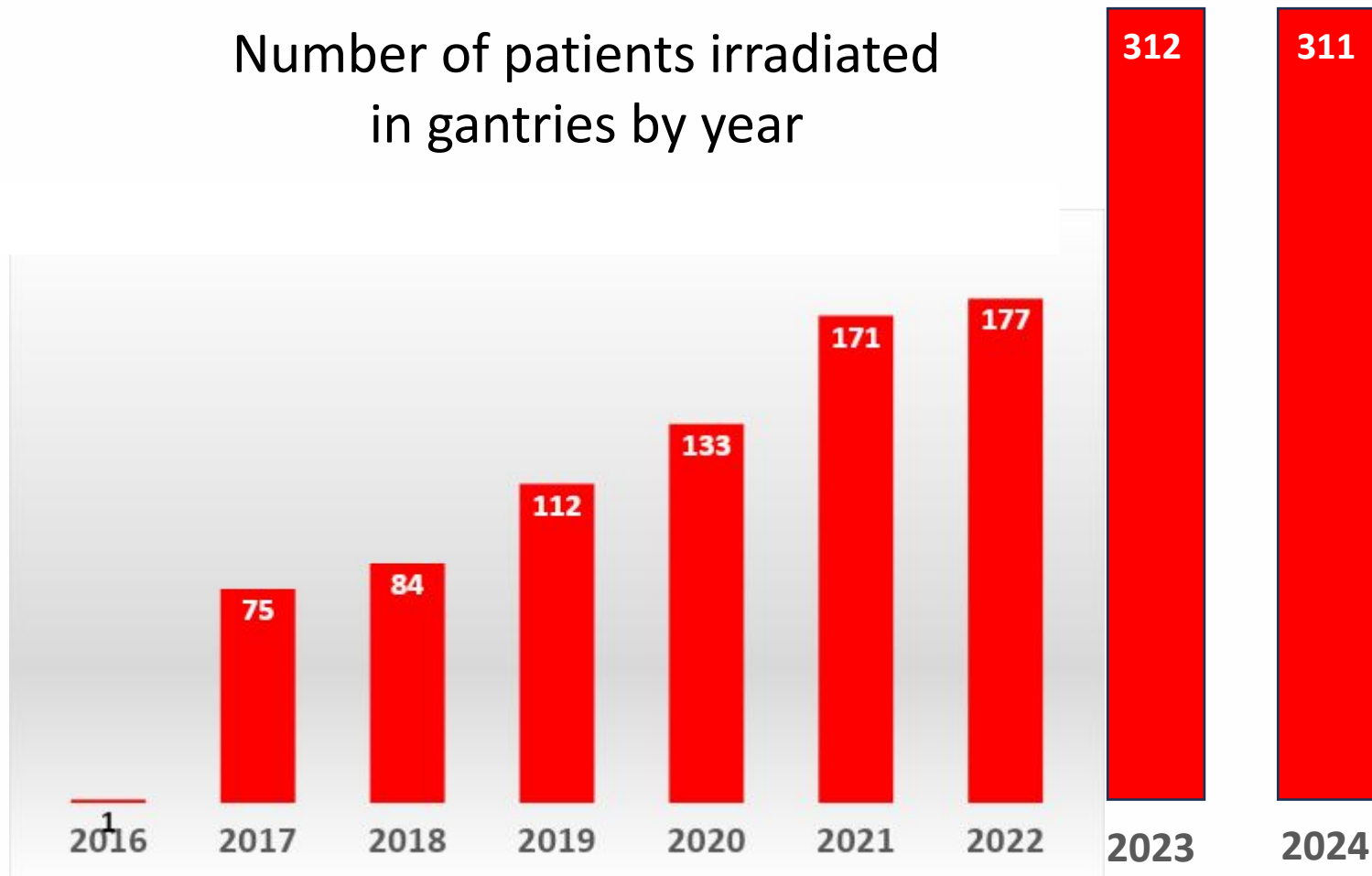
Scanning gantry

Fundamental research in nuclear physics





Number of patients irradiated
in gantries by year





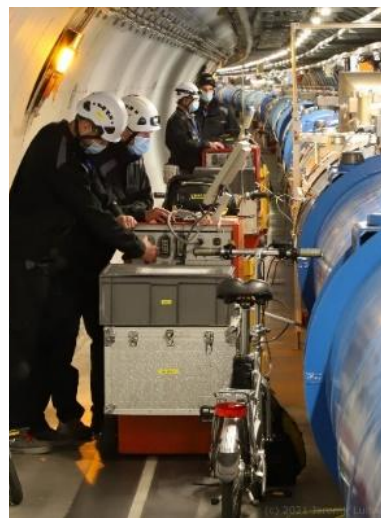
Staff: highly specialized engineers ~45

**Constructions of large external research infrastructures
and
advanced plans for local research base**

*(cryogenics, vacuum, precise mechanics,
quality aspects, test of magnets, RF systems
installations and tests,...)*



SIS100 at FAIR



QC for LHC magnets



Klystrons at ESS



Laboratory of Individual and Environmental Dosimetry (LADIS)

- ❖ Measurements of individual and environmental doses by thermoluminescence method
- ❖ **235 000** measurements in 2023, **11 000** institutions in Poland and Europe

Laboratory of Calibration of Radiation Protection Instruments

Laboratory of Radiometric Expertise

Laboratory of Radioactivity Analyses



Outreach activities – promotion of Science



Małopolska
Researchers' Night



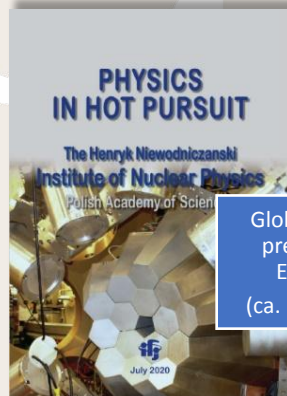
"Physics Couch"
discussion series



Shows "Fascinating
Physics" for children
and teenagers



Musical spectacle "At
the intersection of
two infinities"



Global scientific
press service:
EurekAlert
(ca. 15 per year)

Festival of Science
and Art in Krakow

Scientific Picnic of
the Polish Radio and
Copernicus Science
Centre

Scientific Picnic
of the Polish
Academy of Sciences

Visits of high school
students to
laboratories at IFJ
PAN

IFJ PAN Open Day
for students

Małopolski Festival
of Innovation

QuickPhysX and
QuizFiz contests

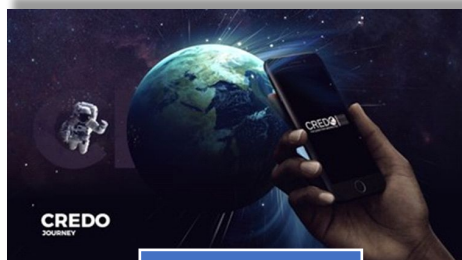
Silesian Science
Festival in Katowice

Particle Physics
Summer Student
Program at IFJ PAN

Int. Masterclasses -
Hands on Particle
Physics for high
school students

Making popular
science movies on
research carried out
at IFJ PAN

Activity in social
media: Facebook,
Twitter and YouTube



"Particle Hunters"
contest with the
CREDO Detector
application



Children's Day
at IFJ PAN





Krakov School of Interdisciplinary PhD Studies (established in 2019)

1. The Henryk Niewodniczański Institute of Nuclear Physics PAN - COORDINATOR
2. Jerzy Haber Institute of Catalysis and Surface Chemistry PAN
3. Jerzy Maj Institute of Pharmacology PAN
4. Mineral and Energy Economy Research Institute PAN
5. Strata Mechanics Research Institute PAN
6. Institute of Metallurgy and Materials Science PAN
7. Faculty of Materials Science and Ceramics AGH
8. Faculty of Physics and Applied Computer Science AGH

Education in the School prepares for obtaining the doctoral degree and is conducted in the following disciplines:

- physical sciences,
- chemical sciences,
- medical sciences,
- pharmaceutical sciences,
- material engineering
- environmental engineering, mining and energy.



131 PhD students (including 30 international students)



THANK YOU FOR YOUR ATTENTION

Have a very fruitful and enjoyable CONFERENCE